

FINAL

EPA Region 5 Records Ctr.



365851

SEDIMENT / DNAPL DELINEATION WORK PLAN

**DETREX RD/RA
SOURCE CONTROL AREA
DETREX FACILITY
ASHTABULA, OHIO
DOCKET NO. V-W-98-C-450**

Prepared for
Detrex Corporation
Ashtabula, OH

October 2009

URS

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October 27, 2009

Ms. Leah Evison, Ph.D.
United States Environmental Protection Agency
Office of Superfund, Region 5
SR-6J
77 West Jackson
Chicago, IL 60604-3590

Subject: Transmittal of the Final Sediment / DNAPL Delineation Work Plan
Detrex Source Control Area – Fields Brook Superfund Site
Detrex Corporation, Ashtabula, Ohio
Docket No. V-W-98-C-450

Dear Ms. Evison:

On behalf of Detrex Corporation (Detrex), and in response to comments submitted by SulTRAC to USEPA as their review of the *Sediment / DNAPL Delineation Work Plan*, URS Corporation (URS) has revised the *Work Plan* to incorporate responses to comments discussed during the October 20, 2009 conference call. For your convenience, URS is submitting the *Final Sediment / DNAPL Delineation Work Plan* to USEPA via email followed by hard copies via U.S. Mail. If you have any questions regarding this submittal, please do not hesitate to contact me at 216-622-2432 at your convenience.

Sincerely,

URS Corporation - Ohio

Martin L. Schmidt, Ph.D.
Vice President

Enclosure

cc: R. Currie – Detrex Corporation
T. Steib – Detrex Corporation
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R. Williams – Ohio EPA
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Appendix A	Detrex Quality Assurance Project Plan (CD) – Included in 6/2008 Work Plan Submittal)
Appendix B	Health and Safety Plan (CD) – Included in 6/2008 Work Plan Submittal)
Appendix C	Comment Response Report to October 2009 USEPA Comments

This document outlines the proposed Detrex sediment investigation and conceptual approaches to potential sediment removal actions at the Detrex Property. This plan also includes details related to the investigation to further delineate DNAPL on the Detrex property. The Work Plan is divided into two main sections. The initial sections address the further sampling that needs to be conducted in the area of the DS Tributary in order to delineate DNAPL and to develop remedial decisions regarding additional sediment excavation that may be needed. While the final sections outline a conceptual approach to the potential remediation of impacted sediments following the completion of the investigatory field work. This Work Plan has been prepared in response to correspondence from United States Environmental Protection Agency (USEPA) received on March 27, 2008 regarding submittal of both an updated OM&M Plan for Source Control Activities and a Work Plan for the DS Tributary. Detrex and URS personnel met with USEPA on April 30, 2008 to discuss future plans for sampling and strategy for DNAPL recovery operations.

Detrex received comments from USEPA on October 13, 2008 and scheduled a conference call with USEPA on October 23, 2008. A comment response report was subsequently prepared and submitted to USEPA on January 9, 2009. A follow-up meeting was held with USEPA on September 22, 2009 to further discuss the Work Plan. During this meeting USEPA agreed that the responses contained in the January 9, 2009 letter were sufficient, and that USEPA wanted to discuss a few remaining issues as outlined in e-mail correspondence dated September 21, 2009. USEPA and Detrex agreed to submit a revised Work Plan to include modifications to the original Work Plan submitted in June 2008 including the incorporation of DNAPL Source Area Delineation Borings that were proposed in the June 2008 Interim Operations and Maintenance Manual.

On October 7, 2009, Detrex received email comments from USEEPA regarding the October 6, 2009 Work Plan. In addition, SulTRAC provided comments to the Work Plan on October 19, 2009. Detrex, URS, USEPA, and SulTRAC had a conference call on October 20, 2009 to discuss comments. In general, Detrex will include all requests made in this Work Plan regarding additional sampling requests and clarifications. As noted, Detrex will only perform limited excavation of the DS Tributary at this time. A comment response report is provided in **Appendix C**.

In 2005, DNAPL was observed near State Road in an area that was not remediated in 2001. A review of historical sampling data indicate that samples in this area were impacted by volatile and semi-volatile compounds, including several that were above the Fields Brook Clean Up Goals (CUGs) established by USEPA. Additional sediment sampling in 2008 by FBAG indicated that only two sampling locations (DS-SD11 and DS-SD13) which are very close to State Road were above established sediment Confidence Removal Goals (CRGs) for semi-volatile organic compounds (Hexachlorobenzene) in EU-5 (DS Tributary). The remaining 2008 FBAG sediment sampling locations along the entire DS Tributary are below established CRGs for volatile organic compounds and semi-volatile organic compounds. On October 25, 2005 Detrex submitted a Remedial Design/Remedial Action Work Plan to USEPA for investigation of DNAPL releases in the northern area and southern area of the Detrex facility. In August 2006, additional geoprobe sampling was completed in the DS Tributary area both on Detrex property and offsite to the north and west. Results of this investigation were submitted to USEPA in

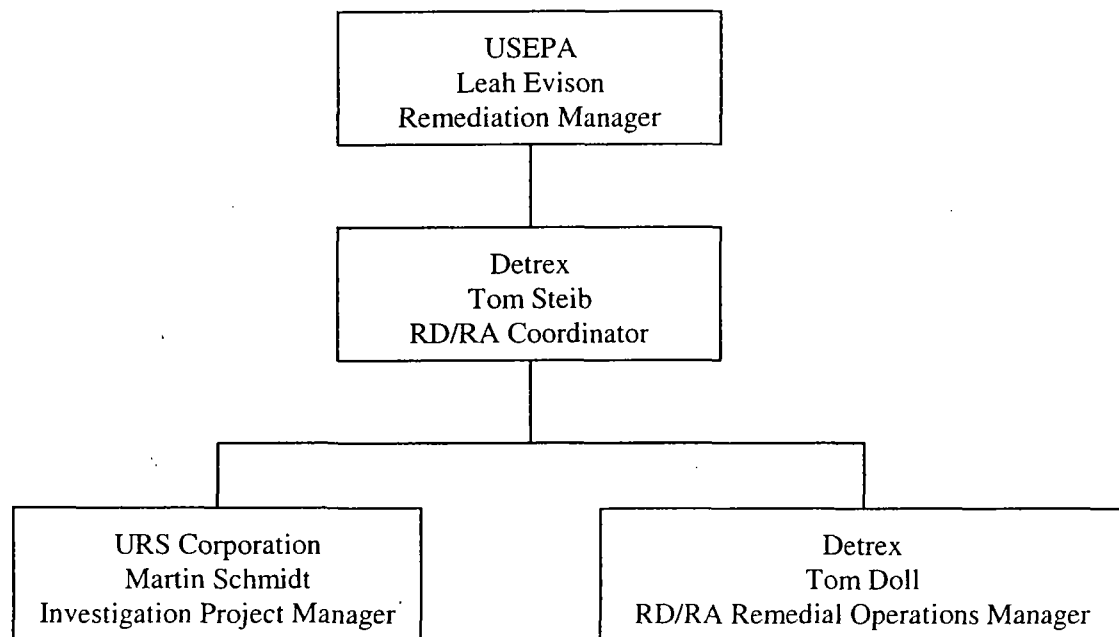
October 2006, for the northern area. Sampling results indicate the presence of impacted soil at depth in the DS Tributary area on Detrex property and to the north. DNAPL was not observed in any piezometers.

This Work Plan, in part, describes the sampling procedures that will be conducted to meet the criteria established in the Fields Brook sediment and floodplain Records of Decision and Explanations of Significant Differences for the DS Tributary. As requested by USEPA, during the September 22, 2009 meeting with Detrex, this Work Plan includes a reconnaissance survey of the entire DS Tributary, hand augering sampling, and the installation of exploratory test trenches near State Road along with the visual inspection for DNAPL in the existing cutoff trenches installed by FBAG in 2008. This sampling program will be completed as part the investigation phase, prior to any potential excavation of sediment and or subsurface soil containing DNAPL or exceeding sediment CRGs for EU-5 chemicals of concern. These locations will be sampled at least three feet into the clay underlying sediment and floodplain soils, and deeper in areas where structures penetrate the underlying clay, per USEPA request. Upon completion of the investigation phase, Detrex will submit an Excavation Work Plan, as appropriate, and subsequently initiate any required excavation as the next phase of work. In addition, this Work Plan includes reference to the updated Detrex Facility QAPP prepared in February 2007 and an updated HASP.

An Organizational Chart is provided as **Figure 1**.

Mr. Tom Steib of Detrex Corporation will be the main point of contact with USEPA. URS Corporation will be providing sampling and technical assistance. Martin Schmidt will be the URS Project Manager. Leah Evison will be the USEPA Remedial Project Manager.

Figure 1



The first phase of work in the DS Tributary will involve investigative procedures to evaluate the vertical and horizontal extent of DNAPL in sediment and floodplain soils (if any) downstream of the Detrex facility. The sampling program will be completed along the DS Tributary. In 2001, several segments of the DS Tributary west of State Road was excavated and backfilled. Figures 2A and 2B provide a description of the DS Tributary and previously remediated areas.

It should be noted that impacted sediments identified in the DS Tributary and Fields Brook are not related other than being attributed to impact from historical releases from former facility operations that had outfalls discharging to the DS Tributary. In particular, the former Occidental Chemical Corporation facility on the west side of State Road and the Detrex Corporation facility on the east side of State Road both had former outfalls that discharged to the DS Tributary near State Road.

During the first phase of work hand augering, exploratory trench excavations in the DS Tributary area and geoprobe borings in and around the Detrex Source Area will be used to assess and delineate impacted material. Upon review of field observations and analytical results, the second phase of work, as appropriate, will include specific plans for any required sediment and soil removal. These activities will subsequently be outlined and detailed in a document that will be provided to USEPA describing an implementation strategy and schedule. General conceptual approaches and procedures to be followed during sediment removal work in the DS Tributary that are based on work conducted in Fields Brook are described in Sections 4.0, 5.0, 6.0 and 7.0. Upon delineation of impacted areas these procedures will be revised and submitted to USEPA in an Excavation Work Plan.

3.1 RECONNAISSANCE SURVEY AND HAND AUGER

Prior to commencement of field operations, the Ohio Utilities Protection Service (OUPS) will be contacted regarding the presence and location of underground utilities. Additionally, all boring locations will be reviewed and cleared by Detrex personnel familiar with Site operations. An underground utility locating contractor will be hired to clear all boring locations on the Detrex facility.

Prior to sediment and soil sampling, a reconnaissance survey will be conducted along the entire DS Tributary. The purpose of this survey will be to attempt to locate areas previously remediated and document conditions of the existing sediment in the stream channel in order to calculate potential volume of impacted material. During the survey, photographs will be taken to identify impacted areas.

Upon completion of the reconnaissance, a sediment hand augering program will be conducted. At this time it is expected that hand augering locations will be approximately 30-50 feet apart. At each location, a 3 ½ inch diameter hand auger will be advanced through sediment into underlying clay soil. If water is present a 4-inch diameter PVC pipe will be driven into the channel to prevent surface water from entering the location during sampling. The depth of sediment will be recorded and up to 10 sediment samples along the investigation area will be submitted for analytical testing. The selection of samples to be submitted for analytical testing will be based on locations of FBAG sediment monitoring points and headspace readings for the

hand auger. Samples will be collected and analyzed even if DNAPL is not identified. It should be noted that the sediment is approximately 6 inches thick in this area of the DS Tributary and it would be difficult to conduct vertical interval sampling. Once the thickness of sediment is identified, an attempt to collect a bottom sample from the underlying native soil will be made. If this sample can be collected field screening procedures will be used to assess potential impact. If evidence of DNAPL is identified during the hand auger program, then additional trench excavations will be completed in these areas using the procedures described in Section 3.2. At each of the sediment sampling locations the width and other location-specific information related to the channel will be recorded.

3.2 EXPLORATORY TRENCH EXCAVATION AND SOIL SAMPLING

Detrex proposes to excavate approximately 2 trench excavations in the DS Tributary channel, west of State Road, within 50 feet of the State Road bridge. The trench excavations will be excavated across the stream channel and extend into the upland areas on both sides of the DS Tributary. The length of the trenches is anticipated to be 10 feet on each side of the DS Tributary, in order to view the edge of the stream channel and adjacent stream banks. The trenches will extend to a depth of three feet into the clay and no more than six feet in total depth. All excavations will be performed using a backhoe. Water in the DS Tributary will be diverted using temporary bladder dams and pumping. Additional test trenches may be completed to investigate subsurface impacts observed during these initial trenches. If the downstream trench shows evidence of DNAPL, then trenches will be added until the approximate extent of DNAPL is found. Excavation spoils will be returned to the exploratory trench excavated. If DNAPL material is encountered it will be segregated, and stored in lined roll off containers in a secure area on Detrex property. A qualified URS geologist will visually monitor excavation work and collect, classify and log soil samples using the Unified Soil Classification System (USCS) in accordance with the American Society of Testing and Materials D2488-00 (ASTM, 2000). During excavations, field screening will be performed on samples collected from all excavation sidewalls as well as the bottom of the exploratory trench excavations. Excavated soil will be screened for VOCs using procedures described in Section 3.4. Two samples from each trench will be submitted for analytical testing that have the highest headspace readings. If the sample at the bottom of the excavation has elevated headspace readings the excavation will be extended deeper, if possible. If DNAPL is observed then glass jars will be used for headspace screening. Proposed exploratory trench excavations are presented in **Figures 2A and 2B**.

3.2.1 Limited Sediment Excavation Program

Upon completion of hand augering and exploratory trench excavations, Detrex will initiate a limited sediment excavation program in the DS tributary channel. As discussed during the September 22, 2009 meeting, the purpose of this limited excavation program will be to remove the previously observed (FBAG) DNAPL impacted sediment in the DS Tributary stream channel immediately west and down gradient of the culvert beneath State Road (approximately 12' x 50' and 2 ft deep).

At this time it is anticipated that the excavation equipment used during excavation of the exploratory trenches will be used to complete this excavation. Stream diversion will be implemented during these excavations. The stream will be diverted by using temporary bladder dams placed across the width of the channel. The temporary dams will be placed upstream and downstream of the proposed excavation area (approximately 50 to 80 ft long). During excavation, stream water will be pumped around the open excavation and discharged on the downstream side of the temporary bladder dam. The sediment excavation will remove no more than approximately 45 cubic yards of sediment (equivalent to two to three lined roll off boxes). Upon completion of excavation, the roll off boxes will be transported to the Detrex facility. The roll off boxes will be covered and maintained in a secure area until characterization results are available and an off-site disposal facility is identified.

It is anticipated that the sediment in the stream channel is approximately six inches thick. If no more than six inches of sediment is removed, then the DS Tributary channel will be regraded using soil from the stream banks to maintain a similar grade or number 57 stone. If the excavation goes deeper than six inches, then clean soil material (i.e. excavated spoils from the groundwater collection trench) from the Detrex site will be used. Prior to placement, the soil will be screened using a PID.

3.3 DETREX SOURCE DNAPL DELINEATION

In order to address USEPA concerns regarding the extent of DNAPL within the Detrex on-site Source Area and evaluate potential alternative DNAPL recovery techniques, additional investigations will be performed. Approximately fifteen (15) geoprobe borings will be advanced to depths of approximately 30 feet below ground surface. Field screening and sampling procedures are described in Section 3.5. A map showing locations of proposed borings was submitted to USEPA in March 2009 and discussed on September 22, 2009. USEPA approved these locations. Proposed geoprobe locations for the on-site area are provided on Figure 3.

3.4 DS TRIBUTARY COLLECTION TRENCH INSPECTION

In 2005, FBAG installed several lined, subsurface collection trenches in the DS Tributary stream channel. At the request of USEPA, Detrex will identify these collection trenches during the reconnaissance survey. Once the collection trenches are located, a visual inspection of liquid within the trench will occur. As part of the visual inspection, a bailer and product interface probe will be used to evaluate the presence of DNAPL in the trenches. On October 22, 2009, Detrex provided sampling results from the collection trench in the DS Tributary and the collection trench in Fields Brook that is downstream of the confluence of the DS Tributary to USEPA. The DS Tributary trench did not contain visible DNAPL and VOCs were nondetect. The Fields Brook trench detected cis-1,2 Dichloroethene at 5.78 ppb. Based on these results, USEPA indicated that trenching in the lower downstream section of the DS Tributary will not be needed at this time.

3.5 FIELD SCREENING PROCEDURES

A 10.6 eV photo ionization detector (PID), manufactured by Rae Systems will be used to screen for the presence of VOCs in the headspace of soil samples. Sample selection will be based on headspace screening results and proximity to the top of the clay and till layers. The MiniRae will be calibrated as described in the Rae Systems *Instructions and Service Manual* using 100 parts per million (ppm) isobutylene. Calibration results will be recorded in the field logbook.

Headspace screening of subsurface soil and sediment samples will be conducted in the field in the following manner:

- Upon collection, soil samples will be prepared for disposition into field screening media and laboratory sample containers. Each sample interval will be divided into two equal parts. One portion will be placed into a zip-lock type bag or glass jar for field screening while the sample portion will be placed into a laboratory provided sample container. For EPA Method 5035, the sample portion will either be preserved using methanol preservation (preserved in the field with methanol using a 40 mL glass VOA vial with a plastic screw cap and a Teflon septa) or with and EnCore™ Sampler (collected using either a 5-gram or 25-gram EnCore™ Sampler). In either scenario, the samples collected will be placed into an ice chest maintained at approximately 4 degrees Celsius for preservation.
- The field screening portion of the sample will be set aside at room temperature and allowed to equilibrate (at least 10 minutes). Headspace screening will then be performed using a photo ionization detector (PID) calibrated to an isobutylene standard. The PID will be inserted into each sample bag or glass jar through a small opening and the maximum total organic vapor concentrations will be recorded as headspace values. The sample used for headspace screening will be discarded with the drill cuttings following screening. Based on field screening results or other project objectives, those sample intervals selected for laboratory analysis will be kept in the cooler for shipment, under chain of custody procedures, to the laboratory for analysis of volatile organic compounds (VOCs) via EPA Method 5035.
- After screening, the portion of the sample subjected to headspace screening will be placed with the borehole cuttings for disposal.

Based on the scope of work for this investigation, the following subsurface soil and sediment sampling program is anticipated:

- Hand Auger Sediment: 10 samples (i.e. grab samples);
- Exploratory Trench: 4 samples (i.e. 2 from each trench, grab samples from backhoe bucket or hand trowel along side walls and bottom based on highest headspace reading); and
- Delineation Borings: ~30 samples (i.e. 2 from each of the 15 proposed boring locations based on headspace reading).

3.6 SAMPLE IDENTIFICATION

All analytical samples will be assigned a unique sample identifier. The identifier will be comprised of the following information:

- Sample Location (identification number, (i.e., DSTRIB-1),
- Sample Interval, Depth (02-04),
- Sample date, and
- Sample type (Environmental, Replicate, or Trip Blank).

3.7 LABORATORY ANALYSIS OF SOIL SAMPLES

Soil samples shall be analyzed for pursuant to the following Methods:

1. Volatile Organic Compounds (VOCs) by USEPA Test Method 5035 – 8260B.
2. Semi-Volatile Organic Compounds (SVOCs / by USEPA Test Method 8270C.

Samples will be shipped to Precision Analytical Laboratories of Cleveland, Ohio in an insulated cooler with ice under standard chain-of-custody protocol. The 2007 USEPA approved QAPP will be used. A copy is provided in **Appendix A**.

3.8 SITE SURVEYING

A location and elevation survey will be conducted using a GPS unit. The location and elevations of the ground surface elevations of all hand auger, trenches and borings will be surveyed and referenced to the site benchmark that is consistent with previously completed site investigations.

3.9 DECONTAMINATION PROCEDURES

All soil and sediment sampling equipment to be utilized will be decontaminated in the following manner:

1. The equipment will be rinsed with clean potable water,
2. Followed by an Alconox/water solution rinse;
3. Followed by a deionized water rinse.

If DNAPL is encountered the equipment will be rinsed with Methanol following the Alconox/water solution rinse.

3.10 SAMPLE HANDLING AND PACKING

Soil samples will be collected in order and containerized according to the volatility of the target analytes. The collection order of the analytes is as follows (where applicable):

- Volatile organics (VOAs or VOCs)
- Semivolatile organics (SVOCs)

Immediately following collection, samples will be placed in iced, insulated coolers. Samples will be packed in bubble wrap or equivalent material, placed in iced, insulated coolers and shipped to the approved laboratory via overnight courier. Proper chain of custody will be maintained during sample handling and shipping activities.

3.11 QUALITY ASSURANCE / QUALITY CONTROL

QC samples will be collected at the following frequencies:

1. Field Duplicates (D) – One (1) per 10 environmental samples collected or a minimum of one per sampling event;
2. Field Blank Samples (B) – One (1) per 20 environmental samples collected;
3. Trip Blank Samples (TB) – One trip blank will be included in each cooler container samples for VOC analysis; and
4. Organic Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples – One (1) per 20 environmental samples collected.

3.12 EQUIPMENT CALIBRATION

Instruments used to gather, generate or measure environmental data will be calibrated with sufficient frequency and in such a manner that accuracy and reproducibility of results are consistent with the manufacturer's specifications. Field measurement instruments will include one or more of the following: multi-parameter meter, pH meter, specific conductance meter, thermometer (or temperature probe), and electronic water-level indicator. As a rule, each field measurement instrument will be calibrated daily prior to use and the calibration checked every 15 samples.

Calibration procedures will be documented in the field records. Documentation will include the date and time of calibration, the identity of the person performing the calibration, the reference standard used, the readings taken, and any corrective action.

3.13 REPORTING

Upon receipt of analytical data from the hand auger, exploratory trenches and delineation borings, a summary report will be prepared and submitted to USEPA prior to implementation of the second phase of the project. The report will include the following information:

- Photographs and observations from reconnaissance survey;
- Maps of sampling locations;
- Summary tables of analytical data;
- Revised DNAPL delineation within the on-site Detrex Source Area;
- Proposed sediment / soil removal drawings; and
- Estimated volume of sediment / soil planned for removal.

The procedures described in Sections 4, 5, 6 and 7 of this Work Plan describe activities that may occur if extensive remediation of the DS Tributary are required. If required, a detailed Excavation Work Plan will be prepared and submitted to USEPA for review and approval. Stream diversions will be necessary to complete any potential remedial excavations in the DS Tributary. DS Tributary waters will be diverted upstream of the immediate work area and will rejoin the stream at a point immediately downstream of the work area. The diversions will remain in place until observations and sampling results have been received. Pending acceptable DNAPL removal, the section of DS Tributary will be restored, the diversion structures protecting that area will be removed, and stream flow in that area will be restored.

Dikes will be constructed of clean materials and will be built to ensure that excavation activities are performed "in the dry". Diversion piping for the channel flow will be installed outside the limits of the excavation area. Waters will be returned to the channel at a suitable location immediately downstream of the downstream dike. Pumps will be used to divert the water through the piping and will operate 24 hours per day during the excavation phases. The pump operation and stream flow will be monitored by an Operator 24-hours per day for any and all times that stream diversion is being implemented.

A backup pump shall be available onsite in the event of failure, maintenance or for surge capacity. Additionally, weather will be closely monitored and necessary provisions made to accommodate potential high stream flows which are related to storm events

The return segment of the diversion will utilize rip-rap and additional techniques necessary to minimize erosion of the stream bed. The diversion return will be regularly inspected for erosion or other problems.

Details related to the final design and implementation of any required stream diversions will be presented in the Excavation Work Plan, which will follow after the review and evaluation of the investigatory data.

Any required remedial excavations associated with the removal of impacted sediments in the DS Tributary will be completed at the end of each work day to the extent that all known contamination has been removed. Upon meeting established cleanup goals in the DS Tributary, the area will be restored and flow will be restored to the DS Tributary. Excavations will not be left open overnight, or during significant rain events (defined by if water accumulates in the excavation) with any known contamination remaining. This will be the control used to ensure that "contact" water does not collect in excavations. "Contact" water can include the following:

- Water that collects in excavation areas while contaminated soils are known to still be present; and
- Water that contacts contaminated soils in stockpiles, and water from decontamination of equipment or personnel.

Details related to the final design and implementation of any required remedial excavations will also be presented in the Excavation Work Plan to be submitted to the USEPA for review and approval.

5.1 STORM WATER DIVERSION

Controls to divert storm water away from excavation and work zones and staging areas will be implemented prior to commencing work. Specifics of controls will vary with the topography and needs of the area, but will include items such as silt fence, rock check dams, filter fabric, berms, and trenches as needed.

Details related to storm water diversion as required by the implementation of any required remedial excavations will also be presented in the Excavation Work Plan to be submitted to the USEPA for review and approval.

5.2 WASTE WATER MANAGEMENT

Groundwater, surface water and rainwater contaminated by operations will be collected for proper treatment and disposal. All contact water will be transferred to a 1000 gallon tank located near the work area. The water from this tank will be decanted off the top (to allow sediments to settle) before transferring to the Detrex treatment system. OEPA will be notified regarding any additional water management/treatment required during sediment excavation.

Details related to waste water management associated with the completion of any required remedial excavations will also be presented in the Excavation Work Plan to be submitted to the USEPA for review and approval.

At this time, the following conceptual approaches and procedures for any required excavation activities are planned. A detailed Excavation Work Plan will be prepared prior to excavation using results from the investigation phases of work described in Section 3.0. Work will progress upstream to downstream along the DS Tributary. The area of soil and sediment removal will be clearly identified. A grid system will be utilized and will determine the depth of excavation per grid square. The grid system will be 10-foot for any DNAPL areas that have been identified from the investigative phases of work. Work zones, access roads and support structures will be established and clearly identified with fencing and appropriate barriers and signage before any material, support, or diversion structures are constructed.

Excavation within any required areas of the DS Tributary will begin once surface water and storm water controls are in place. Typically, excavation will be performed in the following sequence:

- Excavation grids will be marked with survey markers;
- Decontamination pad and staging areas for roll off boxes will be constructed;
- Roll off boxes will be used to store impacted material instead of staging on ground surface;
- Surface water controls will be installed to divert surface water from excavation areas and stock piles.
- Excavate per Section 7 of this Plan, loading contaminated soils into a staging area and roll off box;
- Inspect excavated areas for evidence of liquid DNAPL;
- Complete excavations and removal of DNAPL from the DS Tributary at the end of each work day;
- Maintain excavation open and free of standing water until approval to backfill is provided; and
- Restore floodplain and DS Tributary to original contours and restore area's previous drainage patterns.

All excavation activities shall comply with local, state, and federal regulations, including OSHA.

6.1 WORK ZONES

Work zones including the "Support Zone" (SZ) "Contaminant Reduction Zone" (CRZ), and "Exclusion Zone" (EZ) specific to each activity will be established. The EZ is the designated area where contamination may be present. The CRZ is the designated area where decontamination is to occur. The SZ is the clean area outside these two areas. Control of access to these work areas will be maintained in strict accordance with the HASP. An updated HASP for excavation activities will be prepared and submitted with the Excavation Work Plan. Temporary construction fencing, and/or orange construction fencing will clearly identify these zones.

EZ's will be established based on sampling results along the DS Tributary. These zones will provide a physical barrier to prevent any unauthorized personnel from entering these zones of work. Limits of these areas will be established based on sampling results. Anticipated EZ's to be established are:

- Areas where known contaminated materials will be excavated; and
- Areas where contaminated soil will be stored.

6.2 EQUIPMENT

At this time the extent of excavation has not been determined. Upon determination of the excavation areas a list of equipment will be developed and input will also be solicited from potential excavation subcontractors as part of the contractor selection process.

6.3 CONTAMINATED SOIL/SEDIMENT CONTAINMENT AND DISPOSAL

Any soils containing visible liquid DNAPL will be placed into a lined roll off box container specifically intended for DNAPL soil transfer/disposal. The container will remain covered when not in use and the contents will be transferred to the Detrex property when sediment and or soil is placed in the container.

During the September 22, 2009 meeting with Detrex and in correspondence dated September 21, 2009, USEPA evaluated Detrex Corporation's proposal to contain contaminated excavation spoils from on-site excavation trenches within the Detrex Source Area. USEPA approved on-site containment, with the condition that the remediation wastes will remain in the current area of contamination and will not exacerbate contaminant migration. Sediment from the DS Tributary will be temporarily stored in lined roll off containers on the Detrex facility until the results of characterization samples are obtained and an offsite disposal facility is identified. Detrex will provide USEPA the name of the disposal facility when identified. Detrex will provide USEPA with detailed plans for locating this on-site containment area that is planned for disposal of on-site excavation material only along with site preparation and cover design details.

6.4 STOCKPILES AND FUGITIVE DUST

Clean soils removed from excavations will be placed into a stockpile near the associated excavation area. No liner is anticipated to be required for this clean soil stockpile, but erosion control measures will be required around the base of the stockpile. Soil erosion control measures will include silt fence and/or intercept trenches to prevent soil erosion and transport to adjacent areas.

Control of fugitive dust will be emphasized and regularly monitored. Water will be used proactively to suppress dust from exposed areas of stockpile during placement. Water will be obtained from the Detrex facility, if needed. Plastic liner covers will be used to suppress dust and to prevent erosion. Sandbags, or other suitable items, will be used to weigh down covers for stockpiles.

6.5 EQUIPMENT DECONTAMINATION

All vehicles and equipment entering the Exclusion Zone (EZ) will be decontaminated before leaving the site. A temporary decontamination pad will be constructed for this purpose.

Equipment decontamination will consist of the following:

- Removal of large debris chunks by mechanical means (scraping and brushing);
- Washing the undercarriage, tracks, and wheels with a power washer.
- Haul trucks will utilize full visqueen liners when transporting saturated materials or trucks must have a non-leaking reusable tailgate. No liquids are to leak from trucks leaving the site.
- Decontamination water will be collected and treated at the Detrex Site.

6.6 SPILL RESPONSE

All transportation subcontractors will have spill response contingency plans for handling spills ranging from small incidental releases, to large releases caused by overturns or breaches. Spills shall be cleaned up as soon as safe to do so and shall meet state and federal requirements. Off-site placarded vehicles shall follow federal and state notification requirements.

6.7 BACKFILL MATERIAL

If the limited excavation in the DS Tributary is 6-inches or less, then the excavated area will be backfilled with number 57 stone. If excavation depths and areas are more extensive, then clean soil from the Detrex property will be used as backfill. The existing Ashtabula Till soil from the groundwater collection trench will be used. Prior to placing in the channel, the soil will be screened with a PID.

Upon completion of the investigative program described in Section 3.0, the evaluation of soil / sediment removal areas and volume estimates, the excavation of any identified DNAPL-impacted soils and sediment within the DS Tributary will be performed. As indicated earlier, Detrex will submit an Excavation Work Plan to USEPA, for review and approval, prior to the commencement of any required soil excavation work.

7.1 DNAPL EXCAVATION

Any sediment that is identified within the DS Tributary stream channel that contains DNAPL will be removed. If soil is identified to contain DNAPL in upland areas then the following procedures will be used. These procedures are the same criteria used during DNAPL excavation in Fields Brook.

The default excavation area will be a 20 foot by 10 foot rectangle centered around the "hotspot" and extending laterally if additional traces of liquid DNAPL are present. The depth of excavation will extend into the clay a minimum of 1 foot (between 3 to 8 feet below ground surface). The actual excavation of these areas will be determined by moving laterally from the known "hotspots" and removing any visible liquid DNAPL.

Visual determination of the presence of liquid DNAPL will determine if additional excavation is required beyond the 20 x 10 foot grid. All soils containing liquid DNAPL will be moved directly to the lined container. Soils that are excavated that do not contain liquid DNAPL will be transferred to a stockpile area and inspected visually for the presence of liquid DNAPL. Any soils containing liquid DNAPL will be transferred to the roll off container, and all other soils will be used for backfill for the excavation. Backfill of excavations will not occur before the excavation and sidewalls have been open for at least 2 hours to allow the presence of liquid DNAPL to be observed.

The final excavation also will be surveyed using a PID. If liquid DNAPL is discovered along the sidewalls, further excavation laterally will be required. Excavation depth will not exceed 1 foot into the gray clay aquitard. When the excavation appears free of liquid DNAPL, the area will be considered ready for backfill and restoration.

All other "clean" soils will be set aside for use as backfill later.

7.2 DNAPL REMOVAL CONFIRMATION

The intention of the DNAPL excavations is to locate and remove liquid DNAPL. Any sediment containing DNAPL in the DS Tributary will be removed.

Soil samples from the excavation areas in the stream brook and upland areas will be monitored to identify the presence of DNAPL. Each excavation area will have five sample locations to identify the presence of DNAPL. Samples will be collected from sidewalls and underlying gray clay soil at depths of approximately 4- 6 feet bgs in the floor of the excavation. If the excavation

areas are larger than anticipated, then additional samples may be considered from the sidewalls and floor of the excavation.

8.1 DNAPL INTERCEPTOR TRENCH MONITORING

Upon completion of remedial activities within the DS Tributary, Detrex is proposing to install a DNAPL interceptor trench in the DS Tributary. The intent of the trench is to monitor potential DNAPL that may be in the channel near the State Road bridge. The trench will be excavated on the downstream side of the State Road bridge. It will be excavated to a depth of 5.0 feet and 3.0 ft wide. The trench will extend across the width with HDPE material and backfilled with gravel. An observation / sampling pipe will be installed in one end. The trench will be installed in the same fashion as other temporary trenches installed by FBAG in the DS Tributary in 2005.

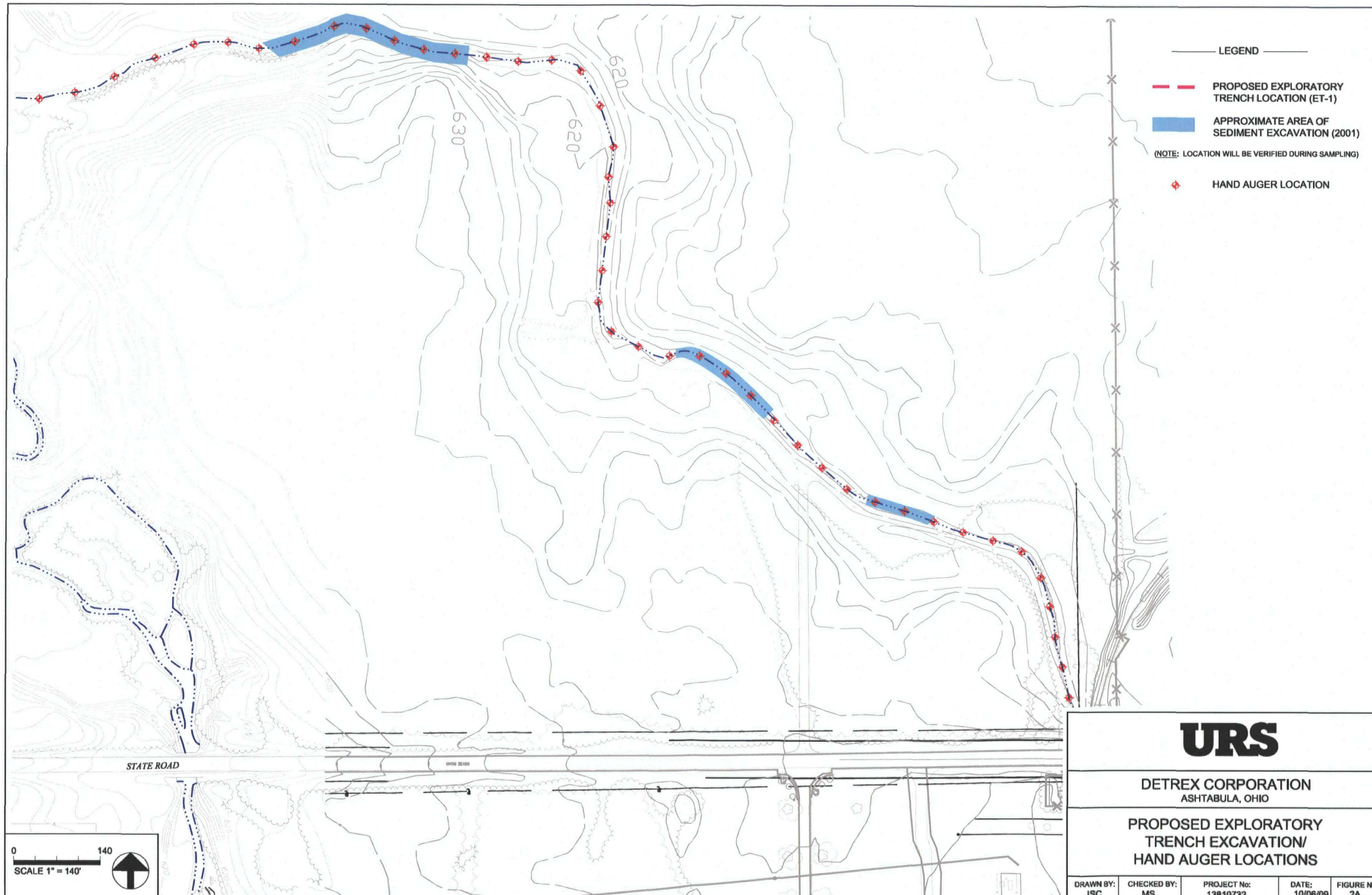
If installed, this trench and the existing trenches installed by FBAG in 2005 in the DS Tributary will be monitored on a semi-annual basis. Monitoring will include visual inspection for DNAPL material using a bailer and product interface probe.

In consideration of the need for additional verification of sediment and soil impact in the DS Tributary, the following schedule is proposed:

<u>Task Description</u>	<u>Data</u>
• Submit Delineation Work Plan to USEPA	October 6, 2009
• USEPA Approval (2 weeks)	October 26, 2009
• DS Tributary Sampling (1 week)	November 2, 2009
• DS Tributary Limited Excavation	November 2-6, 2009
• DNAPL Delineation Borings	November 9, 2009
• Data Review and Reporting (6 weeks)	December 18, 2009
• Submit Plans for DS Tributary Remediation to USEPA	January 2010

FIGURES



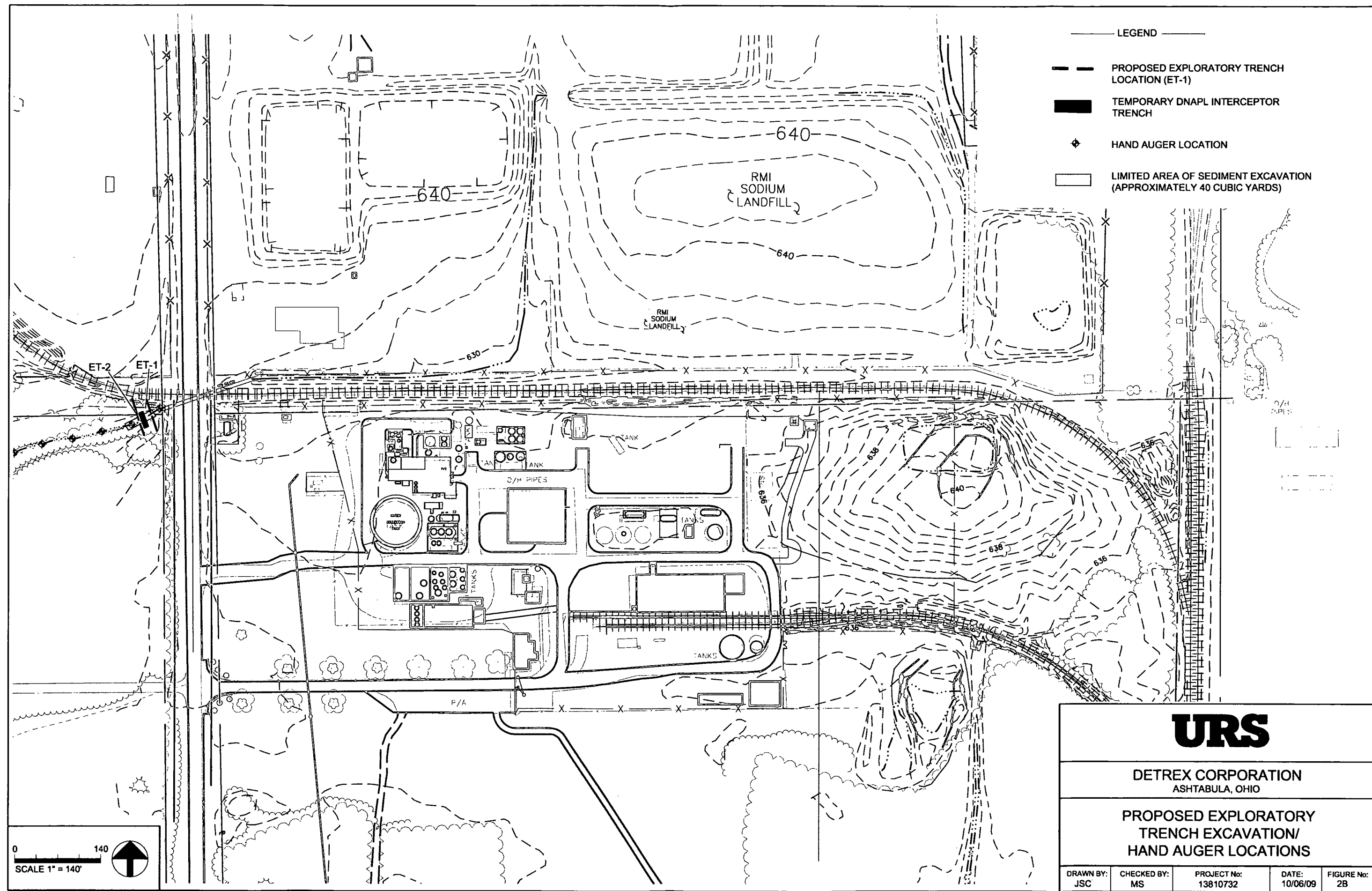


URS

DETREX CORPORATION
ASHTABULA, OHIO

PROPOSED EXPLORATORY
TRENCH EXCAVATION/
HAND AUGER LOCATIONS

DRAWN BY: JSC	CHECKED BY: MS	PROJECT No: 13810732	DATE: 10/06/09	FIGURE No: 2A
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Proposed Additional Boring Locations Detrex Site - Ashtabula, Ohio



Figure 3

APPENDIX A
QUALITY ASSURANCE PROJECT PLAN
(INCLUDED IN JUNE 2008 WORK PLAN SUBMITTAL)

APPENDIX B
HEALTH & SAFETY PLAN
(INCLUDED IN JUNE 2008 WORK PLAN SUBMITTAL)

APPENDIX C
COMMENT RESPONSE REPORT

**COMMENT RESPONSE TO REVIEW OF SEDIMENT / DNAPL DELINEATION WORK PLAN
DETREX RD/RA SOURCE CONTROL AREA / DETREX FACILITY
ASHTABULA, OHIO**

In response to the comments received from SulTRAC dated October 15, 2009, as requested by the U.S. Environmental Protection Agency (EPA), below are the responses to SulTRAC's general and specific review comments.

GENERAL COMMENT

SulTRAC's General Comment No. 1

EP A has not approved on-site disposal of impacted sediment or soil from the DS Tributary. The Record of Decision (ROD) states that thermal treatment or chemical stabilization is required for any liquid dense nonaqueous-phase liquid (DNAPL) and DNAPL-impacted sediment and soil. Treated and untreated sediment and soil should be disposed of in the Fields Brook Landfill or off site. Text in the work plan containing on-site disposal language should be revised to include alternative disposal locations and procedures. EPA has approved temporary on-site storage of the impacted sediment and soil prior to disposal.

Detrex General Comment Response No. 1:

The text has been revised to indicate that any sediment excavated from the DS Tributary will be temporarily stored in lined roll-off boxes on the Detrex facility. Upon receipt of characterization data, the material will be disposed of offsite. Detrex will advise USEPA of the disposal location.

SPECIFIC COMMENTS ~

SulTRAC's General Comment No. 1

Section 3. Page 3.1. This section does not adequately discuss sample collection procedures for hand augering activities, although field screening procedures are provided in Section 3.5, Page 3- 3. This section should be revised to discuss how the vertical intervals will be selected for field screening, as well as the criteria used to determine which samples will be sent for laboratory analysis.

Detrex Specific Comment Response No. 1:

Detrex has revised the text. Vertical intervals of sediment cannot be collected due to sediment thickness. A sample of underlying native soil will be collected and screened.

SulTRAC's General Comment No. 2:

Section 3.1. Page 3.1. The text discusses the spacing of sampling locations. The text should be revised to indicate whether samples will be collected if sediments from all areas investigated do not show presence of DNAPL.

Detrex Specific Comment Response No. 2:

Detrex has revised the text to indicate that samples will be collected regardless of the presence of DNAPL.

SulTRAC's General Comment No. 3:

Section 3.2. Page 3.2. Based on the proposed approach, trench excavation and related field screening activities could potentially miss seams that contain DNAPL. SulTRAC recommends that field screening be performed on samples collected from all walls as well as the bottom of the exploratory trench and that the two samples from each trench with the highest readings be submitted for laboratory analysis.

In addition, the text proposes excavation of two trenches near State Road. The work plan should also specify that if the downstream trench shows evidence of DNAPL, additional trenches would be excavated until the approximate DNAPL extent is delineated. The work plan also should state that if DNAPL is observed or suspected in trenches at the intersection of the Fields Brook and DS Tributary, additional investigation would be performed upstream until the approximate DNAPL extent is delineated. The presence of State Road and the railroad spur are acknowledged as creating limitations on the ability to perform an investigation.

Detrex Specific Comment Response No. 3:

Detrex has revised the text to indicate that the sidewalls and bottom of the trenches will be screened and sampled accordingly.

In addition, the text has been revised discuss the results of sampling the trenches in the DS Tributary and Fields Brook. Results indicate nondetect in the DS Tributary and low VOC concentrations in Fields Brook. On October 22, 2009, USEPA indicated no further trenching was needed in the downstream portion of the DS Tributary.

SulTRAC's General Comment No. 4:

Section 3.2.1. Page 3-2. The text should be revised to indicate how the stream will be diverted during limited excavation activities and to indicate if the stream diversion will be performed in accordance with the procedures discussed in Section 4. In addition, the text states that no more than 45 cubic yards of sediment will be removed. The text should be revised state that additional excavation will occur if the DNAPL-impacted sediment and soil is present in a larger area than currently anticipated. Finally, the text should be revised to discuss backfilling the excavated area.

Detrex Specific Comment Response No. 4:

Detrex has revised that text to describe stream diversion procedures. Temporary bladder dams and pumps would be used to divert water. It should be noted that Detrex will only excavate approximately 45 cubic yards of sediment at this time. If additional excavation is required, a detailed Work Plan will be prepared.

SulTRAC's General Comment No. 5:

Section 3.7. Page 3-4. The quality assurance project plan (QAPP) should be updated as necessary to include the activities discussed in the work plan.

Detrex Specific Comment Response No. 5:

The QAPP will be reviewed to verify that work Plan activities are included.

SulTRAC's General Comment No. 6:

Section 4.0. Page 4-1. Stream diversion is presented as a requirement for excavation activities in this section but not in Section 3.2.1. If stream diversion activities are planned, they should be discussed in each section, including the equipment that will be used and stream diversion procedures.

Detrex Specific Comment Response No. 6:

Detrex has revised Section 3.2.1 to include stream division.

SulTRAC's General Comment No. 7:

Section 6. Page 6-1. The detailed excavation work plan should identify the proposed type and source of backfill planned for the excavated area(s).

Detrex Specific Comment Response No. 7:

Detrex has revised Section 6.0 to include a discussion of backfill. If the excavation is 6-inches or less, then number 57 stone will be used. If the excavation is larger, then a source of Ashtabula Till from the Detrex site will be used. The stockpile material will be screened

with a PID prior to placement. This section of the Work Plan will be resubmitted with the Final Excavation Work Plan.

SulTRAC's General Comment No. 8:

Section 7.2. Page 7-1. The text states that each excavation area will have four sampling locations - to identify the presence of DNAPL. However, four locations would include each sidewall but omit the floor or omit one sidewall location. Each excavation should include five sampling locations. If an excavation area is larger than anticipated, additional samples should be considered for collection from the sidewalls and floor of the excavation.

Detrex Specific Comment Response No. 8:

Detrex has revised this section to include five samples from each excavation area and plans for adding more samples if excavation areas are larger.